Development of Low-Cost Satellite Communications System for Helicopters and General Aviation

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Abstract

In this paper, the development of low-cost satellite communications system for helicopters and general aviation aircrafts is described. System design and standards analysis have been conducted to meet the low-cost, light-weight, small-size and low-power system requirements for helicopters and General Aviation aircrafts environments. Other specific issues investigated include coding schemes, space diversity, and antenna arraying techniques. Coding schemes employing Channel State Information and interleaving have been studied in order to mitigate severe banking angle fading and the periodic RF signal blockage due to the helicopter rotor blades. In addition, space diversity and antenna arraying techniques have been investigated to further reduce the fading effects and increase the link margin.

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